



EES Division

# Intellectual Property

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## ACRONYMS AND ABBREVIATIONS

<b>EES</b>	Earth and Environmental Sciences Division
<b>EES-6</b>	Hydrology, Geochemistry, and Geology Group
<b>EES-9</b>	Environmental Geology and Risk Assessment Group
<b>FEHM</b>	finite-element heat and mass-transfer code
<b>NASA</b>	National Aeronautic and Space Administration

# Patents and Intellectual Property

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## PATENTS AND INTELLECTUAL PROPERTY

The Earth and Environmental Sciences Division (EES) has a small but active effort in developing intellectual property and patents resulting mainly from our work in the energy and environment sectors.

Recent activities with respect to patents include our basic energy science work on nonlinear acoustics and our efforts on zero-emission energy production from coal. Our nonlinear acoustics research (funded by DOE Basic Energy Sciences) has led to intellectual property associated with a patent on the use of a nonlinear method we have developed to characterize damage in solids (Johnson et al., 2001, Patent no. 6,330,827). Several other patent applications on this work are currently under consideration by our patent group. Our work on energy production from coal has led to the filing of a patent application for the production of hydrogen using a novel combination of processes identified at Los Alamos. This patent (Lackner, Ziock, and Harrison) is still pending. In February 2001, James Carey and

George Guthrie (EES-6) were awarded license income based on the patents "Detection of Alkali-Silica Reaction Swelling in Concrete by Staining" and "Detection of Concrete Deterioration by Staining."

In addition, EES intellectual property has successfully competed in the R&D 100 Award competition. EES submits contributions to this process roughly every two to three years. In 1999, EES received an R&D 100 Award

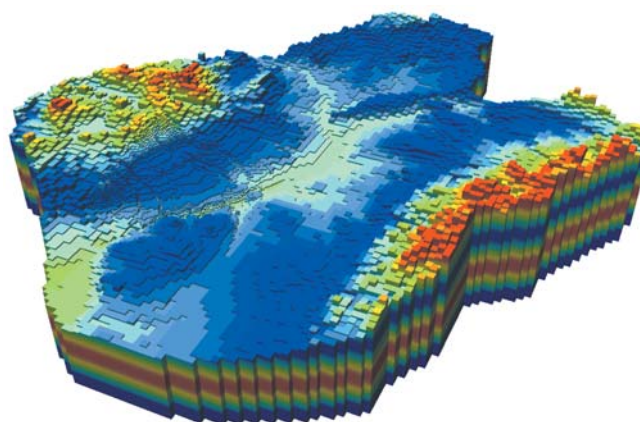


Fig. 1. The Española Basin Model helps us to better understand water resources in the region.

Also in 2001, Gordon Keating (EES-9) and two EES-6 group members, Claes Andersson and Steen Rasmussen, were awarded license income based on the copyright "Web-Based Consensus Building and Conflict Clarification."

for a miniaturized x-ray diffraction and fluorescence instrument designed in collaboration with NASA and the Jet Propulsion Lab for a potential Mars landing mission.

Commercialization is also part of EES's strategy for its intellectual property. ASRDetect—a 1993 R&D 100 Award winner—continues to generate a small level of royalty funding from commercial sales royalties.

EES has recently developed a plan to commercialize its Española Basin Model (Fig. 1), FEHM (finite-element heat and mass-transfer code). FEHM was originally developed at Los Alamos in the early 1980s to simulate geothermal and hot dry rock reservoirs. This code has been used to model contaminant transport problems at over 100 sites worldwide. The Española Basin Model helps us to better understand water resources in the region. The commercialization plan was developed to make the model available to a wide range of stakeholders concerned with regional water issues while avoiding its uncontrolled release. The division is currently pursuing copyright issues for the model before identifying a licensing partner. ■

